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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,715	06/22/2006	Tsuyoshi Hasegawa	60303.58/ho	9865
82168	7590	08/05/2010	EXAMINER	
Neomax Materials Co., Ltd. c/o Keating & Bennett, LLP 1800 Alexander Bell Drive Suite 200 Reston, VA 20191			GAMINO, CARLOS J	
			ART UNIT	PAPER NUMBER
			1793	
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			08/05/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/596,715	Applicant(s) HASEGAWA ET AL.	
	Examiner CARLOS GAMINO	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-17 and 24-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-17 and 24-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/9/10</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/30/10 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. **Claims 12-17 and 24-29** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

4. Claims 12 and 24 recite "not less than about 17% mass... Ni". The examiner appreciates that support for "exactly" 17% can be found in TABLE 1 but support for "not less than about" 17% can not be found.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. **Claims 12-15 and 25-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa et al. (JP 2003-145290) in view of Yasui et al. (US 5,289,965).

Regarding claim 12, Hasegawa teaches (refer to the enclosed written translation for all paragraph references):

A brazing method for brazing a first member and a second member [members (5, 21, 22, 23, 32, 33); see figures 1-3 for all reference numbers] to be joined via a braze joint [brazing filler metal (13)], method comprising the steps of:

preparing the first member and the brazing material, the first member [figure 3 shows two members (5) of composite (1); composite one will be used to show the structure of members (5)] including a base plate [stainless steel member (11)] composed of a ferrous material and a diffusion suppressing layer [Fe atom diffusion suppressing layer (12)] laminated on the base plate [see paragraph 0016] for suppressing diffusion of Fe atoms into the braze joint from the base plate during the brazing,

the diffusion suppressing layer being composed of a Ni-Cr alloy essentially comprising not less than about 15 mass% and not greater than about 40 mass% of Cr [layer (12) can be a Ni based alloy with 10-30% mass Cr; paragraph 0011],

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the brazing material foil being composed of a Cu-Ni alloy essentially comprising not less than about 17 mass% and not greater than about 20 mass% of Ni [the brazing material is Cu based alloy with 15-25% mass Ni; paragraph 0011];

assembling the first and second members into a temporary assembly with the brazing material foil disposed between the diffusion suppressing layer of the first member and the second member [figure 3 shows the members (5) assembled for brazing; 0027];

performing a brazing process by maintaining the temporary assembly at a brazing temperature of not less than about 1,200°C [the brazing temperature is around 1100-1250°C; paragraph 0024],

and cooling the resulting assembly [The assembly is inherently cooled in order for other manufacturing steps to happen such as: assembly, inspection, packing, and shipping. Additionally, the assembly is inherently cooled in order to perform the corrosion resistance test; paragraph 0028.].

Hasegawa does not teach:

that the braze material is a foil;

the exact same ranges; and

fusing the brazing material foil and diffuse Ni atoms and Cr atoms into the fused brazing material foil from the diffusion suppressing layer to form the braze joint, causing the resulting brazing material of the braze joint to have a higher melting point than the brazing temperature to self-solidify all of the brazing material of the braze joint wherein the braze joint is free from segregated solidification and is composed of a Cu-Ni-Cr alloy

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comprising not less than about 34 mass% of Ni and not less than about 10 mass% of Cr.

Regarding the use of foil, Hasegawa does not teach the use of foil but does teach that the members are laminated with the braze material and that the filler material may be prepared separately; paragraph 0025.

Yasui teaches that cladding with a braze material [lamination] or using a sheet are interchangeable steps for brazing; column 5, lines 5-17.

It would have been obvious to one of ordinary skill in the art at the time of the invention that the braze material of Hasegawa could be applied through cladding or as a foil as taught by Yasui. One of ordinary skill in the art would appreciate that the method of applying braze is not critical, therefore selection of a particular application would have been within purview of one of ordinary skill in the art at the time of the invention absent any unexpected results.

Regarding the ranges, Hasegawa and the claims differ in that Hasegawa does not teach the exact same ranges as recited in the instant claims.

However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the ranges taught by Hasegawa overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the prior art reference, particularly in view of the fact that;

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“The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages”, In re Peterson 65 USPQ2d 1379 (CAFC 2003).

Also, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

Regarding the results of the claimed method, it is the examiners position that since the prior art method is identical to that claimed then the prior art method will also achieve fusing the brazing material foil and diffuse Ni atoms and Cr atoms into the fused brazing material foil from the diffusion suppressing layer to form the braze joint, causing the resulting brazing material of the braze joint to have a higher melting point than the brazing temperature to self-solidify all of the brazing material of the braze joint wherein the braze joint is free from segregated solidification and is composed of a Cu-Ni-Cr alloy comprising not less than about 34 mass% of Ni and not less than about 10 mass% of Cr.

Regarding claim 13, Hasegawa teaches:

wherein the second member includes a base plate composed of a ferrous material, and a diffusion suppressing layer laminated on the base plate for suppressing diffusion of Fe atoms into the braze joint from the base plate during the brazing, the diffusion suppressing layer of the second member being composed of a Ni-Cr alloy essentially comprising not less than about 15 mass% and not greater than about 40 mass% of Cr [as noted above members (5) are brazed together and members (5) are

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made of component (1) therefore, the rejection in claim 12 concerning the Cr content also applies here].

Regarding claim 14, Hasegawa teaches:

wherein the base plates of the first member and the second member [member (11) is stainless steel; paragraph 0017] are each composed of a stainless steel.

Regarding claim 15, Hasegawa teaches:

wherein the Ni-Cr alloy of the diffusion suppressing layer has a Cr content of not less than about 30 mass% [the Cr content can be 10-30%; paragraph 0011].

Hasegawa and the claims differ in that Hasegawa does not teach the exact same ranges as recited in the instant claims.

However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the ranges taught by Hasegawa overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the prior art reference, particularly in view of the fact that;

“The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages”, In re Peterson 65 USPQ2d 1379 (CAFC 2003).

Also, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

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7. **Claims 24-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa et al. (JP 2003-145290).

Regarding claim 24, Hasegawa teaches:

This claim only differs from claim 12 in that it does not require a brazing foil but a laminated brazing material on the diffusion suppressing layer.

Therefore, the rejection of claim 12 above applies, minus the foil, along with the following.

Hasegawa teaches in claim 2 that the brazing filler metal is laminated on top of the diffusion suppressing layer.

Regarding claims 25-27, these claims are identical to claims 13-15 thus the reasoning relied upon to reject claims 13-15 also applies to claims 25-27.

8. **Claims 16, 17, 28 and 29** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa et al. (JP 2003-145290 A) and Yasui et al. (US 5,289,965) as applied to claim 12 above and Hasegawa et al. (JP 2003-145290 A) as applied to claim 24, and in further view of Ishio et al. (EP 1,068,924 A1) (see IDS).

Regarding claims 16 and 28, neither Hasegawa nor Yasui teach:

wherein the brazing foil or layer has a thickness of not less than about 20 μm and not greater than about 60 μm .

Ishio teaches a method of joining stainless steel members using a Fe diffusion layer and a Cu braze alloy. The thickness of the braze alloy is 13-70 μm ; paragraph 0052.

It would have been obvious to one of ordinary skill in the art at the time of the invention that the thickness of Ishio could be incorporated into Hasegawa/Yasui. One would look to Ishio for a braze thickness since Hasegawa is silent as to the thickness of the braze layer. Additionally, Ishio teaches a range for the thickness therefore, braze thickness is a known variable and since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Ishio and the claims differ in that Ishio does not teach the exact same ranges as recited in the instant claims.

However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the ranges taught by Ishio overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the prior art reference, particularly in view of the fact that;

“The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages”, *In re Peterson* 65 USPQ2d 1379 (CAFC 2003).

Also, *In re Geisler* 43 USPQ2d 1365 (Fed. Cir. 1997); *In re Woodruff*, 16 USPQ2d 1934 (CCPA 1976); *In re Malagari*, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

Regarding claims 17 and 29, Hasegawa teaches:

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wherein the brazing temperature is not less than about 1,200°C and not higher than about 1,250°C [brazing is done from 1100-1250°C; paragraph 0024 or 1180°C which is about 1200°C, Table 1, specimen 6], and a duration for which the temporary assembly is maintained at the brazing temperature is not shorter than about 30 min and not longer than about 60 min [brazing is done for 10-50 min; paragraph 0024].

Hasegawa and the claims differ in that Hasegawa does not teach the exact same ranges as recited in the instant claims.

However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the ranges taught by Hasegawa overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the prior art reference, particularly in view of the fact that;

“The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages”, In re Peterson 65 USPQ2d 1379 (CAFC 2003).

Also, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

Response to Arguments

9. Applicant's arguments filed 6/4/10 have been fully considered but they are not persuasive.

10. Any argument drawn to Hasegawa not teaching the range of about 17-20% mass Ni is not persuasive because as noted above this range fails within the range noted by Hasegawa in paragraph 0011 and the selection of a smaller range within the paragraph 0011 range would have been well within the purview of one of ordinary skill minus unexpected results.

11. In response to the applicant's argument that specimen 12 of Hasegawa does not achieve the claimed lower limit of 34%, is an unacceptable joint because it receives a C grade and is not self-solidified, while these statements may be true they do not hold true for the entire ranges taught by Hasegawa. The specimens taught in Table 1 are but a fraction of the possibilities that could lie within the ranges taught by Hasegawa. Therefore, saying that the properties of a single example are indicative of the entire genus is neither proper nor persuasive. Furthermore, since the claimed steps and ranges are taught by Hasegawa there is no reason why one would not expect to get similar results.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CARLOS GAMINO whose telephone number is (571)

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270-5826. The examiner can normally be reached on Monday-Thursday, 9:30am-7:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Emily M. Le can be reached on (571) 272-0903. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Emily M. Le/
Supervisory Patent Examiner, Art
Unit 1793

/Carlos Gamino/
Examiner, Art Unit 1793